



Hopi Long-term Monitoring Program for Öngtupqqa

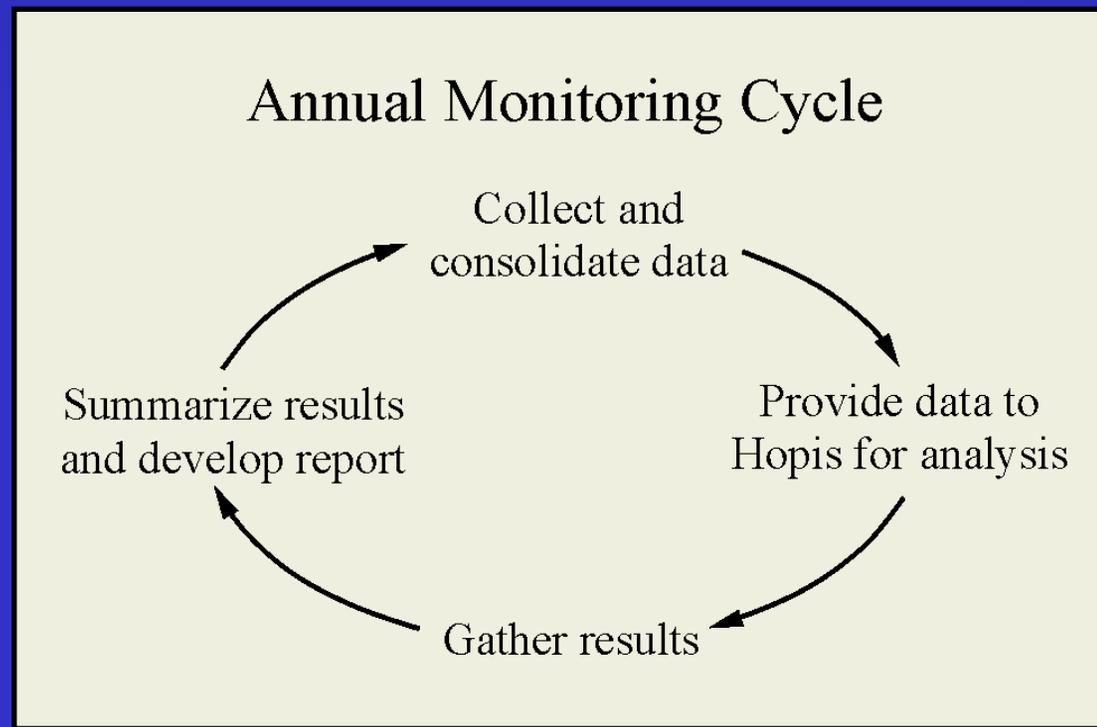
Goals and Challenges in Program Development

- Cultural importance:
 - Origin point
 - Location for numerous traditional narratives and the home for many deities
 - Ancestral home
 - Final resting place
- Challenges:
 - Restrictions on entry into the Öngtupqa
 - Sampling issues



“Integrate traditional Hopi cultural values into a science-based long-term monitoring program”

Solution



- Survey based approach
- Premise - it is the during the interpretation of data and not necessarily during its collection where cultural values and traditional knowledge are best integrated
- Developed out of the TEM integration project (2000-2004)

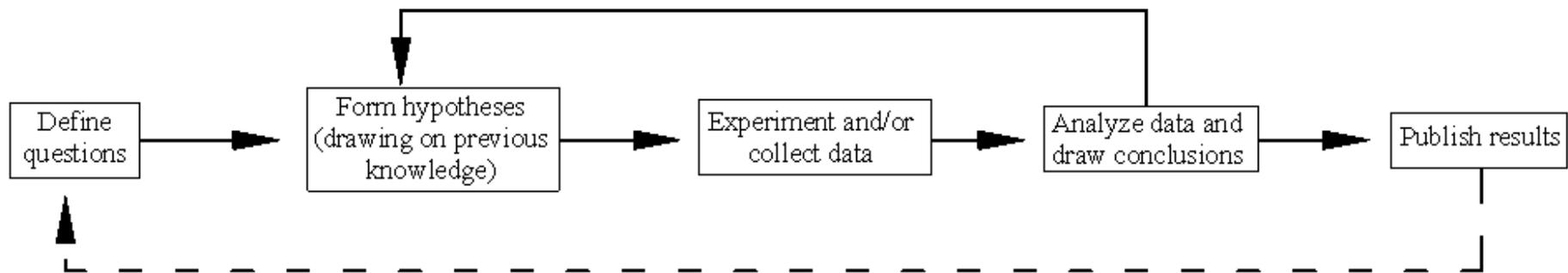
Traditional Knowledge

continuum

Scientific Knowledge

Both seek to explain the world we live in through observation and manipulation...

- TK is relatively emic; Science is etic
- TK is more implicit; Science explicit
- TK incorporates natural selection in design
- TK is more holistic; Science is more reductionist
- TK records knowledge in culture; Science in print



Data Acquisition

- Relies primarily on data collected by other scientists
 - For TEM resources, made sure that types of data being collected where appropriate
- Independent observation by limited number of Hopis on river trips
 - Repeat visits to specific sites
 - Locations with culturally important resources
 - Repeat photography
 - Voucher specimens



Data Synthesis and Presentation

- Data needs to be made relevant; convert into familiar terms or concepts
- Information converted to Standardized Presentations
- User groups
 - General Hopi Public
 - Tribal Council and Administrators
 - Land managers and resource professionals
 - River participants and Cultural Advisors
- Education (at all levels) is critical to program operation

Status of Fish

Paakiw, fish: Native fish have generally decreased in numbers since 1984. Scientists believe the decrease is caused by many factors, including competition from non-native fish species and changes to its habitat caused by Glen Canyon Dam. Recent warmer water released from the dam may be helping the native fish as populations are now stabilizing or increasing. One native fish is the humpback chub, a federally listed, native endangered fish that lives in the LCR. Scientists are removing trout in an effort to help the humpback chub. There are no clear results yet.



Photos by Matt Laurretta

Humpback chub have a distinct hump above their head.



Non-native rainbow trout are a favorite for fisherman.

Kristin Huisenga

Feedback (Surveys)

- Standardized survey
 - In depth survey for river trip participants
- Interviews and Focus groups
 - On river
 - At Hopi
 - In field
- Tutuveni



Analysis and Reporting

- Qualitative and quantitative analysis
 - Survey design allows for assessing trends related to changing resource conditions and/or changing Hopi values
- Access and Nvivo 7 databases
 - Survey data is of a nominal scale, non-parametric
 - Qualitative analysis of information content
- Annual report detailing trends on resource health from a Hopi perspective and recommendations when appropriate

